



# The Economics of Lead-Based Paint Hazards in Housing

*The control of lead-based paint hazards can be financed to achieve the goal of reducing exposures to lead-based paint, while preserving affordable housing and minimizing costs*

David E. Jacobs, CIH

Director, Office of Lead-Based Paint Abatement and Poisoning Prevention  
U.S. Department of Housing and Urban Development

Over the past century, efforts to prevent childhood lead poisoning by controlling lead-based paint hazards in housing have been marked not by overreaction, but by subdued, halting, reactive, and, unfortunately, largely ineffective policy responses, technical guidelines, and financing. This history is due to a number of reasons, including the fact that symptoms of lead poisoning are subtle and benefits are thus intangible. This has important implications for policy development and hazard recognition because resources typically are devoted to more obvious concerns.

An increasing number of lawsuits brought by poisoned children against building owners has also fueled a broadly recognized need to change the way in which the nation responds to lead-based paint in housing. Recent developments suggest that the twin threats to children's health and the availability of older affordable housing posed by lead-based paint are finally being recognized and managed. Those developments include:

- Passage of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of the 1992 Housing and Community Development Act -- PL 102-550), which defines a lead-based paint hazard based on the scientific understanding of how lead exposures from paint actually occur.
- Completion of a HUD Lead-Based Paint Task Force report mandated by Title X (HUD 1995a) that represents a consensus policy statement on correcting market failures and other recommendations for private and public sector initiatives.
- Issuance of updated HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (HUD 1995b) that detail specific technical procedures to control exposures from lead-based paint.
- Funding by the federal government for hazard control in both private and public housing; as of 1996, nearly \$355 million will have been appropriated at the Federal level specifically for lead-based paint hazard control in low-income private housing and millions more in public housing (HUD 1995c).
- Promulgation of a new disclosure law that will provide citizens with the opportunity to find out whether or not lead-based paint may exist in their newly purchased or rented houses, instead of leaving them to act in the dark (HUD/EPA 1996).
- New state and local programs aimed at making the lead-based paint hazard identification and control industry well-trained and certified to protect children and make certain that owners' money is spent wisely (EPA 1994a).



- Completion of major new research projects paving the way for simpler and more inexpensive hazard identification and control methods (HUD 1996; EPA 1995a).

This article discusses why actions to control lead-based paint hazards in housing make economic sense. It analyzes how this work can be financed to achieve the goal of controlling exposures to lead-based paint while preserving affordable housing and minimizing costs to owners and taxpayers.

#### PREVALENCE OF LEAD-BASED PAINT IN HOUSING AND COST IMPLICATIONS

Current estimates are that there are 64 million housing units with lead-based paint above 1 milligram per square centimeter, about half of the nation's entire housing stock. Twenty million of those units are thought to contain lead-based paint in a hazardous condition and 3.8 million children less than six years of age reside in those houses (HUD 1991; EPA 1995a). Approximately 500,000 of those households are economically distressed and cannot finance correction of those hazards without public subsidy (HUD 1995a). Thus, lead in paint constitutes a widely dispersed, yet highly concentrated source.

---

*Recent developments suggest that the twin threats to children's health and the availability of older affordable housing posed by lead-based paint are finally being recognized and managed.*

---

Previous control efforts to reduce lead exposures were more centralized and relatively inexpensive. Reduction of lead in food was accomplished primarily from the elimination of the use of lead in the seams of cans. In gasoline, reductions were made possible by changes in gasoline refining techniques. Both these measures could be implemented by addressing only a few sources (refineries and canning plants).

The fact that lead poisoning is often an asymptomatic disease has important implications for how it is viewed by policymakers and medical care providers, who may be reluctant to allocate adequate resources to control a disease that is not readily apparent. Victims may appear "normal" and com-

pensatory special education, nutrition, and public education programs may help to some extent. The sources of exposure, the control of which will require significant financing in a housing stock that is already distressed, adds to the perception that the lead problem is either intractable, or paradoxically, not a significant problem.

#### EVIDENCE FOR THE EFFECTIVENESS OF CONTROLLING LEAD-BASED PAINT HAZARDS IN HOUSING

Studies of various types of lead hazard control methods and how well they protect the health of children, the public, and workers have not been compiled until recently (Staes and Rinehart 1995; EPA 1995b). The studies show that carefully executed hazard control methods are effective in reducing children's blood lead levels and/or the dust lead levels in their houses.

These blood lead levels appear to decline anywhere from 6% to 23% over a period of six months to a year following hazard control. Another study shows that an 84% to 96% decline in dust lead levels can be maintained for at least 3.5 years following abatement (Farfel 1994).

Most of these studies were of lead-poisoned children and were not explicitly designed to quantify the primary prevention benefit of controlling exposures before blood lead levels increased. Because prevention of exposure would eliminate the bone lead storage phenomenon and irreversible neurological effects, the effectiveness of hazard control will be greater than indicated by these studies.

No study has yet been done of children born into lead-safe dwellings, making an accurate quantification of the benefits of exposure prevention difficult. Indeed, such a study poses significant ethical concerns (i.e., a control group would consist of children born into houses with the lead hazards remaining untreated). But it is evident that reliance on the medical model (i.e., treatment of houses following the appearance of a child who has already been poisoned) will fail to realize the full benefits of primary prevention.

Title X of the 1992 Housing and Community Development Act charges HUD with the task of shifting the nation's strategy from a reactive, medical model approach to a pre-

ventive, housing-based approach, while maintaining the existing blood lead screening programs to ensure that those children who are poisoned are identified and treated.

#### INTERIM CONTROLS, ABATEMENT AND OTHER HAZARD CONTROL METHODS

During the past several years, an unnecessarily divisive debate has raged over whether abatement is more effective than interim controls, and whether public education programs can be substituted for actual correction of lead hazards. Some view interim controls to be the only practical response, given the financial condition of much of the nation's low-income housing stock and the lack of funds to conduct abatement. Others view abatement to be the only effective response, since interim controls demand a heightened commitment to housing management that is unrealistic in the dwellings posing the greatest risks, where housing is operated by owners and managers who are either unwilling or unable to carry out basic management practices.

---

*Until the housing market values a lead-safe dwelling, financing lead-based paint hazard control will not be considered to be a reasonable investment by owners.*

---

Interim controls are those methods that can be implemented quickly and relatively inexpensively, but are likely to have shorter lifespans than abatement methods. Interim controls include specialized cleaning (dust removal), paint film stabilization, friction and impact treatments, and treatment of bare soil with grass, sod or other covering. Abatement includes any treatment to a house that can be expected to last at least 20 years, including building component replacement, enclosure, encapsulation, paving or soil removal, and paint removal.

Studies have been conducted using treatments that today would be called interim controls (Farfel 1994). Collectively, the studies demonstrate that *both* strategies are effective. In fact, both strategies have been integrated successfully in the nation's only truly ongoing, long-term primary prevention effort: the public housing program. Here, immediate hazards are identified and controlled, and housing units are made free of

hazards and thus eligible for insurance relatively quickly and inexpensively, typically at a cost of about \$200 per dwelling unit (HES 1995). Much of this work is done by specially trained maintenance workers who perform what the HUD Task Force termed "Essential Maintenance Practices". At the same time, long-term but deliberate progress is being made to render all such dwellings permanently lead-safe, usually through building component replacement or permanent enclosure/encapsulation in conjunction with renovation work.

---

*The fact that lead poisoning is often an asymptomatic disease has important implications for how it is viewed by policymakers and medical care providers.*

---

Costs of lead abatement are difficult to separate from the costs of renovation. For example, replacement of old energy-inefficient windows coated with lead-based paint with new windows could be considered to be an abatement technique or renovation work. Anecdotal evidence suggests the costs of abatement are anywhere from \$1,500 to \$20,000 per dwelling unit, depending on the size of the house and the number of painted surfaces. In short, interim controls and abatement are complementary, not contradictory, activities.

Not surprisingly, the degree of effectiveness varies with the baseline blood lead level (Swindell 1994; Aschengrau 1994). It appears that the extent of the blood lead decline is most pronounced when the child's baseline blood lead level is already elevated. At lower blood lead levels, the decline is more modest, as expected. When the work is conducted without proper controls, dust lead and blood lead levels often increase, sometimes dramatically (Staes and Rinehart 1995; EPA 1995b; Amitai 1991; Fett 1992; Fischbein 1981; Rabinowitz 1985; Swindell 1994).

### Quality Control Issues

The harmful effects of haphazard abatement and careless home renovation or remodeling projects that disturb lead-based paint can be avoided if certain quality control, training, licensing and certification systems are developed and enforced, and if clearance examina-

tions are conducted in dwellings following the work. Such a nationwide system is being promulgated by EPA under statutory authority from Congress (EPA 1994a). Clearance examinations include visual assessment and dust (and perhaps soil) sampling after lead hazard control work has been completed. Without such control, exposures can be heightened instead of controlled. Evidence that poorly controlled housing rehabilitation and renovation can cause lead poisoning has been reviewed elsewhere (Shannon 1992; Jacobs 1994; HUD 1995b; Staes and Reinhart 1995).

### Cost-Benefit Studies

Lead poisoning prevention is widely regarded as one of the stellar public health initiatives of the second half of this century. While blood lead levels have declined dramatically, previous successes in controlling exposures demonstrate that such actions provide direct health benefits, *not* that efforts to control childhood lead poisoning are no longer needed. There are some who assert that we should stop here -- that we have already done enough by controlling lead in food and gasoline (Morris 1995). They argue that we can "coast" the rest of the way and that childhood lead poisoning will eventually disappear by itself without further actions. Paradoxically, they also argue that while needed, addressing paint hazards will cost too much.

However, Schwartz recently estimated that the nation would save \$1.7 billion per year for every 0.1 microgram per deciliter drop in mean population blood lead level (Schwartz 1994). HUD recently completed a regulatory impact analysis for its proposed regulations covering all federally assisted housing (HUD 1995d). The analysis showed that net benefits in the first year of the rule would be over \$1 billion for federally assisted housing alone. The Centers for Disease Control and Prevention estimated that the nation would save \$62 billion by addressing lead-based paint hazards over the next 20 years, discounted to the present (CDC 1991).

Some suggest that the nation is about to embark on a program of complete removal of all lead-based paint from 64 million dwellings. HUD estimates that the cost of removing all lead-based paint from the nation's housing stock would cost over \$500 billion and that the average cost of lead paint removal is \$7,700 per housing unit (HUD 1990). Average costs for full abatement provide an incomplete pic-

ture, however, because many houses can be fully abated for a much smaller amount. In HUD's Federal Housing Administration (FHA) demonstration project, half of all the houses treated cost less than \$2,500 per unit to completely abate (HUD 1991) because the number and size of surfaces coated with lead-based paint was quite small. In its lead-based paint grant program for private housing, HUD and local and state governments are experimenting with a number of techniques to reduce costs, including the use of community-based groups to do the work and better targeted innovative hazard control technologies.

---

*Despite the fact that some houses may be candidates for fuller treatment, a \$500 billion price tag indicates that complete removal of all lead-based paint in all housing is impractical, certainly in the near term.*

---

Many houses have only a small amount of lead-based paint present. For example, houses built between 1960 and 1979 have an average of 782 square feet of lead-based paint on interior and exterior surfaces, less than 5% of all paint. On the other hand, houses built before 1940 have an average of 2,355 square feet of lead-based paint on interior and exterior surfaces (HUD 1990; EPA 1995c).

Despite the fact that some houses may be candidates for fuller treatment, a \$500 billion price tag indicates that complete removal of all lead-based paint in all housing is impractical, certainly in the near term. Complete removal or abatement may be feasible in houses where only a small amount of lead-based paint is present, where the incremental costs of abatement in the context of renovation are relatively inconsequential, or where funds are available. For all other houses, interim control methods aimed at controlling *exposures*, i.e., lead-based paint that is in a hazardous condition (along with control of contaminated housedust and bare soil) is more appropriate and feasible.

In fact, there is not a single housing program anywhere that has attempted to remove all lead-based paint from all dwellings. Even the most extensive abatement programs include options such as enclosing or encapsulating lead-based paint. Additionally,

most housing programs, including the public housing program, have no breakneck deadline to meet for abatement. Instead, abatement activities are almost always carried out during other construction and housing renovation activities, and will be done over a decade or two in a controlled, rational fashion. This kind of deliberate effort hardly seems to be a campaign based on panic.

#### PROPERTY MANAGEMENT PRACTICES

Interim controls and some forms of abatement are based on the idea that property owners will manage their properties in such a way that any lead-based paint that is present remains in a non-hazardous controlled condition. Are property owners in fact up to this task? Is it reasonable to require owners to take the necessary steps to keep all lead-based paint intact, provide cleanable surfaces to prevent accumulation of leaded dust, keep bare soil covered, conduct routine maintenance work in a "lead-safe" way, and conduct periodic evaluations and tests to ensure the property remains lead-safe? Some argue that owners of properties most likely to produce lead-poisoned children (dilapidated inner city low-income housing) will *not* in fact be capable of performing these management functions and that therefore full removal of lead-based paint is the only foolproof answer.

---

*Many landlords who operate low-income properties have very low or negative cash flows that make private funding of lead hazard controls difficult.*

---

What is likely to be the effect of owners' failure to adopt interim controls in a rigorous, serious fashion? Ironically, such a failure is likely to stimulate calls for wholesale removal of all lead-based paint, which is clearly impractical. After all, if it appears that owners cannot manage lead-based paint hazards, what other choice is there? The result of such a scenario is clear: calls for wholesale removal in fact would lead to no action at all.

Such an environment is conducive to lawsuits brought by poisoned children against landlords who failed to take action. According to a recent *New York Times* article, the city alone is faced with over one thousand pending lawsuits. But the tort system is ill-

equipped to address the problem. Most poisoned children do not sue and of those that do, most are unsuccessful in proving damage due to the subtle effects of lead poisoning described above. Those few cases that do win substantial awards for poisoned children sometimes have the unintended consequence of driving affordable insurance and responsible owners out of the market.

#### What Should Be Done: Learning from the Asbestos Experience

Policymakers have learned useful lessons from the asbestos experience. In asbestos, EPA regulated removal operations only; no EPA regulatory apparatus was constructed to regulate or monitor asbestos as it remained in place. The lesson on the asbestos experience was *not* that asbestos is not a toxic substance -- it is, and exposures need to be controlled so that asbestos-related disease does not occur. The lesson was simply that it is important to control *exposures*, which is not necessarily the same as removal of the substance. In short, some toxic substances may best be managed in place until removal becomes the only option or unless the material will be disturbed in a way that can cause hazardous exposures, such as during renovation. If management is not possible, effective, or preferred, then safe, controlled, and professional removal or abatement is the only alternative. Fundamentally, this choice is no different than any other capital improvement made in housing.

#### LEAD-BASED PAINT AS A CLASSIC MARKET FAILURE: WHO SHOULD PAY?

Who can and should pay for controlling childhood lead poisoning? Currently, the costs of childhood lead poisoning are borne by our nation's health care and educational systems. In spite of advances in medical treatment, complete reversal of the effects of seriously elevated blood lead levels is unlikely. Medical care costs anywhere from \$1,300 to \$5,000 per child (CDC 1991b) and many children must be treated more than once. Poisoned children will also require special attention in the educational system to attempt to overcome the reductions in intelligence caused by lead poisoning. These costs are estimated to be about \$3,300 per child (CDC 1991b), a great deal more in severe cases. This figure does not include the wider economic and social costs of lowered productivity, special education, substantial reductions in lifetime earnings and

anti-social behavior. Wasting money like this makes even less sense when some houses are known to repeatedly poison many children over many years.

A more practical, less costly (and far more humane) way to deal with this problem is to control the source of exposure. Principally, this source is lead-based paint and the contaminated dust and soil it generates. In some locations, contaminated dust and soil are also still with us from the historic use of leaded gasoline and emissions from lead industries. All these sources are found in the home, so it makes sense to focus on housing-based strategies.

#### Informed Consumers and the Housing Market

Lead-based paint hazards in housing are generally not recognized or valued by the public. Housing appraisers do not consider the presence or absence of lead-based paint hazards in the value of a dwelling. Free markets require informed customers in order to operate properly. Until the housing market values a lead-safe dwelling, financing lead-based paint hazard control will not be considered to be a reasonable investment by owners. Fundamentally, the presence of lead-based paint is no different than any other housing defect, such as a leaky roof. But because the hazards are not recognized, victims are not obvious, and consumers are not informed, the market fails. Owners do not regard lead hazard control to be a good investment because the value of the property does not increase.

---

*If owners fail to adopt a more active management style, then it is almost certain that more litigation, more high-priced awards, and more extreme calls for complete removal will arise.*

---

HUD and EPA have issued a law that will correct this market failure (HUD/EPA 1996). The lead-based paint disclosure law permits prospective owners to obtain a lead-based paint inspection or risk assessment if they want one. It also requires owners to disclose any knowledge of lead-based paint in the dwelling before lease or sale. Finally, it will inform consumers about lead-based paint hazards through a warning statement and through dissemination of an educational bro-

chure at approximately 9 million sales and leasing transactions annually.

## Subsidies

Is it fair (or even practical) to expect that owners alone are responsible for paying to correct the problem? After all, most owners did not even think they were doing anything wrong in applying lead-based paint to their dwellings and in some cases they were obeying laws that *required* the use of lead-based paint. Furthermore, most owners today never actually applied the old paint in the buildings they now own. Many landlords who operate low-income properties have very low or negative cash flows that make private financing of lead hazard controls difficult. Lead poisoning prevention efforts should not cause abandonment of housing, already a major problem. Public-sector funding is needed for those economically distressed dwellings not amenable to information and market-based strategies.

Informed consumers will solve a significant part of the problem as lead hazard control becomes simply another wise investment in a house. But many low-income properties do not generate enough income to make preventative measures financially sensible, even low-cost interim controls. Even non-profit housing organizations are finding it difficult to continue to provide decent housing at prices the poor can afford. In addition to its lead-based paint grant program for private housing, HUD is proposing to streamline its lead-based paint requirements across all its housing programs and to require specific action that depends on the extent of federal financial involvement.

## Future Options for the Housing Provider Community

Even though subsidies and private markets will play important roles, the hard fact remains that owners control housing and are ultimately responsible for correcting any housing defects, including lead-based paint hazards. Increasingly, local laws provide a legal duty for owners to respond to hazards and poisoned children. How owners (and the insurance and mortgage companies that back them) respond to this issue will in large measure determine how the nation proceeds.

If owners fail to adopt a more active management style, then it is almost certain that more litigation, more high-priced awards, and

more extreme calls for complete removal will arise. The net result will be that only a small fraction of poisoned children will be compensated and the largest source of lead exposure to children will be left uncontrolled. On the other hand, if owners act to implement rather simple measures that control hazards, and perhaps more importantly, if policymakers require owners to actively monitor the condition of lead-based paint to make sure hazards do not appear, then litigation will be much less successful, fewer cases will be brought, *and* fewer children will be poisoned.

Historically, the biggest judgments have been brought against owners who failed to do anything. Proving negligence is relatively simple in such cases. On the other hand, owners who have implemented reasonable management practices and who have data proving that the dwelling they own is lead-safe will have much less liability exposure. In this situation, the assumption will be that the child must have been poisoned from a lead source other than the paint in the dwelling.

## CONCLUSIONS

Previous efforts to control lead in gasoline and food have been successful in reducing population blood lead levels. However, further decreases are unlikely unless additional action is implemented to control exposures to lead-based paint and the contaminated soil and dust it still generates in housing. Prevalence studies show that most pre-1978 houses contain some lead-based paint, although most paint does not in fact contain lead, and most of the paint that does contain lead is in a non-hazardous condition. Cost-benefit analyses

show that the nation will save billions of dollars if lead-based paint hazards are controlled. HUD has recently issued comprehensive technical guidelines that govern how both interim control and abatement techniques can be implemented safely and how lead-based paint hazards can be properly identified. Calls for wholesale removal of all lead-based paint are not feasible due to the high cost involved and may in fact result in increased exposure to children. A more flexible strategy is now being implemented that requires owners to properly manage lead-based paint using special maintenance practices and monitoring until permanent removal or enclosure/encapsulation can be performed.

The principal method of implementation involves the use of existing private market forces, which require an informed consumer for most houses and targeted subsidies in cases where private financing is not possible. Through a series of regulatory and non-regulatory actions, HUD is implementing a new plan to control lead-based paint hazards in housing through a reasonable, practical strategy based on science, research, consensus and private/public partnerships. Owners have the principal responsibility to manage lead-based paint hazards in the housing they own; their response will in large measure determine the success or failure in containing liability exposure and the childhood lead poisoning epidemic.

In the next 5 to 10 years, an important opportunity exists to break the back of a preventable disease that is too expensive to ignore, whose causes are well understood, whose outcome is insidious and irreversible, and whose solutions are clear.

David E. Jacobs was appointed by Secretary Henry Cisneros to serve as Director of the HUD Office of Lead-Based Paint Abatement and Poisoning Prevention on July 18, 1995. As Director, Mr. Jacobs is responsible for establishing policies and programs to prevent childhood lead poisoning caused by exposure to lead-based paint hazards in housing. He coordinates and oversees the Office's grant programs to state and local governments, technical assistance and guidelines development, technical studies, regulation and standards development, and public education. He is responsible for coordinating activities with other Federal agencies such as the Environmental Protection Agency and the Centers for Disease Control and Prevention. Mr. Jacobs also develops initiatives designed to promote public/private partnerships that control hazards in the millions of dwellings contaminated with lead-based paint. He has also served as Deputy Director of the National Center for Lead-Safe Housing and Director of the EPA Southern Lead-Based Paint Training Consortium at the Georgia Institute of Technology, Texas A&M University and Louisiana State University. Mr. Jacobs was one of 40 experts appointed to the HUD Task Force on Lead Hazard Control and Financing by Henry Cisneros, and is the principal author of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

## REFERENCES

- Amitai 1991. Amitai, Y., Brown M.J., Graef J.W., and Cosgrove E., Residential Deleading: Effects on the Blood Lead Levels of Lead-Poisoned Children. *Pediatrics* 88(5):893-897.
- Aschengrau 1994. Aschengrau A., Beiser A., Bellinger A., et. al., The Impact of Soil Lead Abatement on Urban Children's Blood Lead Levels; Phase II Results from the Boston Lead-in-Soil Demonstration Project, *Environmental Research* 1994: 67:125-148.
- CDC 1991. Strategic Plan for the Elimination of Childhood Lead Poisoning, Centers for Disease Control and Prevention, Public Health Service, Department of Health and Human Services, Atlanta, Georgia.
- EPA 1994. Environmental Protection Agency, Proposed Rule, Requirements for Lead-Based Paint Activities, *Federal Register*, Washington, D.C., September 2, 1994, pp. 45871-45921.
- EPA 1995a. Environmental Protection Agency, A Field Test of Lead-Based Paint Testing Technologies, EPA 747-R-0026, Washington, D.C., May 1995.
- EPA 1995b. Environmental Protection Agency, Review of Studies Addressing Lead Abatement Effectiveness, Battelle Institute, EPA 747-R-95-006.
- EPA 1995c. Environmental Protection Agency, Report on the National Survey of Lead-Based Paint in Housing, EPA 747-R-95-003.
- Farfel 1994. Farfel M.R., Chisolm J.J., Rohde C.A., The Longer-term Effectiveness of Residential Lead Paint Abatement, *Environmental Research* 66:217-221.
- Fett 1992. Fett M.J., Mira M., Smith J., Alperstein G., Couser J., Brokenshire T., Gulson B., Cannata S., Community Prevalence Survey of Children's Blood Lead Levels and Environmental Lead Contamination in Inner Sydney, *Medical Journal of Australia* 157:441-445, October 5, 1992.
- Fischbein 1981. Fischbein, A., Anderson K.E., Shigeru S., Lilis R., Kon S., Sarkoi L., and Kappas A., Lead Poisoning From Do-It-Yourself Heat Guns for Removing Lead-Based Paint: Report of Two Cases, *Environmental Research* 24:425-431.
- HES 1995. Housing Environmental Services, Personal Communication with Miles Mahoney.
- HUD 1990. U.S. Department of Housing and Urban Development, Comprehensive and Workable Plan for the Abatement of Lead-Based Paint in Privately Owned Housing: Report to Congress, Washington, D.C.
- HUD 1991. U.S. Department of Housing and Urban Development, Office of Policy Development and Research, The HUD (FHA) Lead-Based Paint Abatement Demonstration Project, Prepared by Dewberry & Davis, HC-5831, Washington, D.C. 1991.
- HUD 1995a. U.S. Department of Housing and Urban Development, Office of Lead-Based Paint Abatement and Poisoning Prevention, Lead-Based Paint Hazard Reduction and Financing Task Force -- Putting the Pieces Together: Controlling Lead Hazards in the Nation's Housing, HUD-1547-LBP, Washington, D.C., June 1995.
- HUD 1995b. U.S. Department of Housing and Urban Development, Office of Lead-Based Paint Abatement and Poisoning Prevention, *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, HUD-1539-LBP, Washington, D.C.
- HUD 1995c. U.S. Department of Housing and Urban Development, Office of Lead-Based Paint Abatement and Poisoning Prevention, Lead-Based Paint Hazard Control Grant Program for Low-Income Private Housing, Washington, D.C.
- HUD 1995d. U.S. Department of Housing and Urban Development, Office of Lead-Based Paint Abatement and Poisoning Prevention, Regulatory Impact Analysis of the Proposed Rule on Lead-Based Paint: Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally-Owned Residential Property and Housing Receiving Federal Assistance, ICF Kaiser, Washington, D.C.
- HUD 1996. U.S. Department of Housing and Urban Development, Office of Lead-Based Paint Abatement and Poisoning Prevention, Interim Report on the Evaluation of Controlling Hazards in Low-Income Private Housing, written by the National Center for Lead-Safe Housing and the University of Cincinnati, March 1996.
- HUD/EPA 1996. U.S. Department of Housing and Urban Development and the Environmental Protection Agency, Joint Rule, Requirements for the Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards in Housing, *Federal Register* March 6, 1996, pp. 9063-9088.
- Jacobs, 1994. Jacobs D.E., Lead-Based Paint as a Major Source of Childhood Lead Poisoning: A Review of the Evidence, Beard M.E. and Iske S.D.A. eds., *Lead in Paint, Soil and Dust: Health Risks, Exposure Studies, Control Studies, Control Measures, Measurement Methods and Quality Assurance*, American Society for Testing and Materials STP 1226, Philadelphia, PA, pp. 175-187.
- Morris 1995. Morris R., Why Title X Should Be Repealed, LeadTech '95 Conference Proceedings 43-50.
- Rabinowitz 1985. Rabinowitz M., Leviton A., Bellinger D., Home Refinishing: Lead Paint and Infant Blood Lead Levels, *American Journal of Public Health* 75:403-404.
- Schwartz 1994. Schwartz J., Societal Benefits of Reducing Lead Exposure, *Environmental Research* 66:105-124.
- Shannon 1992. Shannon, M.W., and J.W. Graef, Lead Intoxication in Infancy, *Pediatrics* 89(1):87-90.
- Staes and Rinehart 1995. Staes, 1995. Staes C., and Rinehart R., Does Residential Lead-Based Paint Hazard Control Work? A Review of the Scientific Evidence. National Center for Lead-Safe Housing, Columbia, Maryland, 79 pages.
- Swindell 1994. Swindell S., Charney E., Brown M.J., Delaney J., Home Abatement and Blood Lead Level Changes in Children with Class III Lead Poisoning, *Clinical Pediatrics* 33:536-541, Sept. 1994.